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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/553,168	01/03/2006	Fabio Veroni	2789-62	7759
23117 7590 08/22/2007 NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203			EXAMINER ROMAN, LUIS ENRIQUE	
			ART UNIT 2836	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/553,168		VERONI, FABIO	
	<b>Examiner</b>		<b>Art Unit</b>	
	Luis Roman		2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 15-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some    \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>03/31/06</u> .  | 6) <input type="checkbox"/> Other: ____.                          |

## DETAILED ACTION

### *Claim Objections*

**Claim 4** the examiner assumes that the current thru the thermal current level detection is  $I_1$  and the electromagnetic current thru the coil of element 13 is  $I_2$ , since  $I_1$  was not previously introduced.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 1-4, 6, 17-19** are rejected under 35 U.S.C. §103(a) as being unpatentable over Bolda et al. (US 6204751) in view of C.D. Flanagan (US 3159768).

Regarding claims 1 Bolda et al. discloses a circuit (Fig. 2) comprising a switch to be arranged in said electrical circuit (78); first means for causing said switch to break said electrical circuit in response to a tripping signal (76); means for receiving and storing a programmable current threshold command (74); means for detecting a current level in said electrical circuit (62a-c & 68); and processing means for generating said tripping signal (72) depending on said stored programmable current threshold command and said detected current level but does not disclose characterized by second means for causing said switch to break said electrical circuit if a current flowing in said electrical circuit exceeds a predetermined rated current  $I_R$  for more than a specified duration.

C.D. Flanagan teaches a circuit breaker, which opens if a current flowing in said electrical circuit exceeds a predetermined rated current  $I_R$  for more than a specified duration (Col. 2 lines 18-61 & Fig. 1 elements TH, BW, R1).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Bolda et al. circuit the C.D. Flanagan teachings because provides an instant protection in case of an overload condition.

Regarding claims 2-4 C.D. Flanagan further discloses a thermal current level detection element (TH) and coil for causing the switch (SWA) to break the electricity to the load (L) when the temperature threshold is exceeded.

Bolda et al. teaches (Fig. 2) a current thru 76 to drive 78 and C.D. Flanagan teaches (Fig. 1) a current thru TH to drive BW wherein is desired that the rated electrical current level of current thru the electromagnetic coil is higher than the one thru the thermistor to minimize power losses.

Regarding claim 6 Bolda et al. in view of C.D. Flanagan discloses the claimed invention except for that the first means, the second means and said switch are integrated into a single unit. It would have been obvious to one having ordinary skill in the art at the time the invention was made to integrate the three elements in one unit, since it has been held that forming in one piece an article which has formerly been formed in two pieces and put together involves only routine skill in the art. *Howard v. Detroit Stove Works*, 150 U.S. 164 (1893).

Regarding claims 17-19 Bolda et al. in view of C.D. Flanagan discloses the circuit of claim 1.

Bolda et al. further teaches receiving commands and operating the switch and communicating devices of a network thru a media cable (Col. 6 lines 8-29).

**Claims 5** is rejected under 35 U.S.C. §103(a) as being unpatentable over Bolda et al. (US 6204751) in view of C.D. Flanagan (US 3159768) and Yamamoto Hiroshi (JP 07-312151).

Regarding claim 5 Bolda et al. in view of C.D. Flanagan discloses the circuit of claim 1 wherein the coil of Bolda et al. trips the switch if the current exceeds a predetermined value but does not teach a solid state interruption element in series with the switch..

Yamamoto Hiroshi teaches a circuit breaker with a solid state interruption element in series with the switch (Fig. 1 elements 2U, 8U).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Bolda et al. in view of C.D. Flanagan circuit the teachings of Yamamoto Hiroshi because interrupts unexpected current in less than 1 cycle once detected by current-limiting reactor. Does not need to rise short circuit current interruption capacitance of circuit breaker in receiving point due to short circuit impedance of unexpected current (Abstract).

**Claim 7** is rejected under 35 U.S.C. §103(a) as being unpatentable over Bolda et al. (US 6204751) in view of C.D. Flanagan (US 3159768) and Covi et al. (US 6515840).

Regarding claim 7 Bolda et al. in view of C.D. Flanagan discloses the circuit of claim 1 but does not disclose wherein the circuit detecting a current level in the electrical circuit comprises a resistor for converting an electrical current flowing in said electrical circuit into a voltage; and a comparator for detecting the voltage and outputting a corresponding current level detection signal.

Covi et al. teaches a circuit breaker with a sensing resistor and a comparator (Fig. 3 elements RS, 20).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Bolda et al. in view of C.D. Flanagan circuit with the

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teachings of Covi et al. because operational amplifiers provide accurate comparison, amplify the signal drive other elements and consume low power.

**Claims 8** is rejected under 35 U.S.C. §103(a) as being unpatentable over Bolda et al. (US 6204751) in view of C.D. Flanagan (US 3159768), Covi et al. (US 6515840) and W.F. Skeats (US 2310126).

Regarding claim 8 Bolda et al. in view of C.D. Flanagan and Covi et al. discloses the circuit of claim 1 but does not disclose wherein the means for converting an electrical current into a voltage comprises a shunt impedance or an arrangement of coils magnetically coupled to constitute a transformer or a hall effect device or a magnetoresistor or a Rogosky coil.

W.F. Skeats teaches a circuit breaker with a shunt impedance (Fig. 2 element 12).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Bolda et al. in view of C.D. Flanagan and Covi et al. circuit the teachings of because it is desirable to have current and voltage measurement records in precise and accurate time relation with respect to each other in other words without distortion.

**Claims 9-11** is rejected under 35 U.S.C. §103(a) as being unpatentable over Bolda et al. (US 6204751) in view of C.D. Flanagan (US 3159768) and Fowler et al. (US 5710691).

Regarding claims 9-10 Bolda et al. in view of C.D. Flanagan discloses the circuit of claim 1 but does not disclose wherein the processing means is adapted to generate said tripping signal after said detected current level has continuously exceeded said programmed current threshold for a specified duration.

Fowler et al. teaches a programmable control unit that protects against overcurrents (Abstract & Fig. 2).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Bolda et al. in view of C.D. Flanagan circuit with the teachings of Fowler et al. because the ability to adjust and monitor threshold values of time and power is desirable as the time of appliance use and/or the amount of consumed electrical energy are important factors in the safe use of appliances.

Regarding claim 10 Fowler et al. further teaches wherein the specified duration can be programmed to depend on the detected level of current in the electric circuit (Abstract).

Regarding claim 11 Bolda et al. further teaches a memory (Fig. 2 element 74).

**Claim 15** is rejected under 35 U.S.C. §103(a) as being unpatentable over Bolda et al. (US 6204751) in view of C.D. Flanagan (US 3159768), Fowler et al. (US 5710691) and Sato Eietsu et al. (FR 2751784).

Regarding claim 15 Bolda et al. in view of C.D. Flanagan and Fowler et al. discloses the circuit of claim 9 but does not disclose wherein the processing means is adapted to provide a plurality of functional relations each specifying for a plurality of current levels a respective associated duration; and select one of the functional relations in accordance with the current threshold command.

Sato Eietsu et al. teaches a switching adjustment method for circuit breakers wherein the processing means is adapted to provide a plurality of functional relations each specifying for a plurality of current levels a respective associated duration; and select one of the functional relations in accordance with the current threshold command (Fig. 7).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Bolda et al. in view of C.D. Flanagan and Fowler et al. circuit with the teachings of Sato Eietsu et al. because it removes the possibility of an operator wrongly adjusting the circuit breaker.

**Claim 16** is rejected under 35 U.S.C. §103(a) as being unpatentable over Bolda et al. (US 6204751) in view of C.D. Flanagan (US 3159768), Fowler et al. (US 5710691), Sato Eietsu et al. (FR 2751784) and Hartmann et al. (US 5359711).

Regarding claim 16 Bolda et al. in view of C.D. Flanagan, Fowler et al. and Sato Eietsu et al. (FR 2751784) discloses the circuit of claim 15 but does not specifically disclose the use of tables.

Hartmann et al. teaches a system with circuit breakers that uses tables (Col. 2 line 56 to Col. 3 line 5).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Bolda et al. in view of C.D. Flanagan, Fowler et al. and Sato Eietsu et al. circuit with the teachings of Hartmann et al. because provides easy customization.

**Claim 20** is rejected under 35 U.S.C. §103(a) as being unpatentable over Bolda et al. (US 6204751) in view of C.D. Flanagan (US 3159768), B.B. Purdy et al. (US 2839092) and Baker (US Patent Application Publication 2002/0135237).

Regarding claim 20 Bolda et al. in view of C.D. Flanagan discloses the circuit of claim 1 and a switch and a coil for electro magnetically driving a movable member but does not disclose wherein the first means comprises an auxiliary switch connected in series with the coil; the switch and the auxiliary switch being mechanically coupled with the movable member for actuation thereby; a displacement required for opening the auxiliary switch being larger than a displacement required for opening the switch.

B.B. Purdy et al. teaches a circuit that uses a switch with multiple poles and a single throw wherein an auxiliary switch connected in series with the coil (Fig. 6 element 43).

Baker teaches a switch with multiple poles and single throw wherein the displacement of the contacts is different (Fig. 3).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Bolda et al. in view of C.D. Flanagan circuit the teachings of B.B. Purdy et al. because it allows to drive multiple switches with only one coil and further in view of Baker because this proongs the live of the switching activated devices.

**Claims 21-22** are rejected under 35 U.S.C. §103(a) as being unpatentable over Bolda et al. (US 6204751) in view of C.D. Flanagan (US 3159768) and Gilker (US 4514685).

Regarding claims 21 & 22 Bolda et al. in view of C.D. Flanagan discloses the circuit of claim 1 but does not disclose that is in an electricity meter for measuring the amount of energy supplied to an electricity consumer through an electric circuit.

Gilker teaches an electricity meter (Abstract).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the Bolda et al. in view of C.D. Flanagan circuit with the teachings of Gilker because it generates accurate signals of the measurements (Col. 1 line 65 to Col. 2 line2).

Gilker further teaches a circuit for obtaining a measure for the instantaneous active and reactive power levels supplied to the electric circuit; and integrating the obtained instantaneous power levels over time in order to obtain the active and reactive energy supplied to the electrical circuit (Fig. 4).

**Claims 23-26** are rejected under 35 U.S.C. §103(a) as being unpatentable over Bolda et al. (US 6204751) in view of C.D. Flanagan (US 3159768) and Berkman et al. (US 7064654).

Regarding claim 23 Bolda et al. in view of C.D. Flanagan discloses the circuit of claim 1 but does not disclose the use of it in an electricity distribution network, comprising at least one electrical power plant for generating electrical power to be

distributed to a plurality of consumers; an electrical power distribution network for distributing the power generated by said at least one power plant to said consumers.

Berkman et al. teaches an electric network to provide electrical power to a plurality of consumers (Abstract).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the Bolda et al. in view of C.D. Flanagan circuit with the teachings of Berkman et al. because the combination allows an electricity distribution network to measure the consumption of each customer.

Regarding claim 24 Bolda et al. disclose command signals to operate the breaker (Fig. 2 elements 83a-d, 84, 72, 76).

Regarding claim 25 Berkman et al. further teaches a network with high, medium and low voltages and substations (Fig. 2) and communications thru a twisted pair (Fig. 6c) and Bolda et al. teaches command signals (Fig. 2 elements 83a-d).

Regarding claim 26 Berkman et al. further teaches the communications in the electric network being wireless (Fig. 16).

### ***Allowable Subject Matter***

Claims 12-14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luis E. Román whose telephone number is (571) 272-5527. The examiner can normally be reached on Mon – Fri from 7:15 AM to 3:45 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Sherry can be reached on (571) 272-2084. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from Patent Application Information Retrieval (PAIR) system.

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LR/081807

Luis E. Román  
Patent Examiner  
Art Unit 2836



8-20-07

STEPHEN W. JACKSON  
PRIMARY EXAMINER